

プログラム名：「豊かで安全な社会と新しいバイオものづくりを
実現する人工細胞リアクタ」

PM名：野地博行

プロジェクト名：「つくる」人工細胞デバイス

委 託 研 究 開 発

実施状況報告書（成果）

平成29年度

研究開発課題名：

Development of novel anti-biofouling reagents

研究開発機関名：

The University of British Columbia

研究開発責任者

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Abstract

In the second year of the program, we have decided to explore novel quorum quenching enzymes to degrade AI2, which are isolated by other group. We also focused on establishing biosensor bacterial strain that detect AI2 and express green fluorescence protein to produce a detectable signal. We have established purification and characterization methods for AI2-QQ enzymes. However, so far, we were not able to detect enzymatic reaction of the enzymes against the AI2 molecule. We have successfully established a AI2 biosensor using a Vibrio strain. We further optimized the condition of cell lysis to be able to screen enzyme library for AI2 degradation.

1. Activities, Accomplishment and Findings

1-1. Established and performed purification of three QQ enzymes isolated from metagenomic functional screening)

1-2. Performed characterization of the three QQ enzymes against AI2 and AHLs

1-3. No enzyme is active against AI2 (we are exploring further).

1-4. Established a Vibrio biosensor strain to express GFP upon detection of AI2.

1-5. Optimized the condition of cell lysis and sample preparation for enzyme screening.

2. Outreach, Events and Other Activities

None.